

Template for ISB Documentation of Stressors

A. General Information:

1. Name or Location of Example/Approach: Ecological Risk Assessment

2. Literature/Citations Used: Burgman, M. 2005. *Risks and Decisions for Conservation and Environmental Management*. Cambridge: Cambridge University Press.

<http://www.epa.gov/raf/publications/guidelines-ecological-risk-assessment.htm>

Harwell, M.A., et al. 2010. A quantitative ecological risk assessment of the toxicological risks from *Exxon Valdez* subsurface oil residues to sea otters at northern Knight Island, Prince William Sound, Alaska. *Human and Ecological Risk Assessment* 16: 727-761.

Wiens, J.A. 2007. Applying ecological risk assessment to environmental accidents: Harlequin ducks and the *Exxon Valdez* oil spill. *BioScience* 57: 769-777.

3. Reviewer(s): John Wiens

B. Specific Questions: See below.

1. What stressors are considered?

2. Are stressors categorized? If so, how?

3. Are the relations between stressors and management objectives modeled, and if so, how?

4. If stressors are prioritized, describe the general approach.

5. How might this approach be relevant to Bay Delta?

6. Follow up regarding additional questions/literature review/etc?

Ecological Risk Assessment is a formalized approach to assessing the environmental risks associated with particular proposed actions and specific targets. It is an integral part of the NRDA process, following EPA guidelines, and has been applied in various forms to a wide variety of environmental issues. Qualitatively, it is a way of charting the relationships between actions or causal factors and their consequences or effects, and thereby provides a way of placing stressors in the broader cause-effect pathway in a logical way. Quantitatively, risk assessment permits one to calculate the probabilities that outcomes in one link of a causal pathway will influence following links. The approach thus may provide a way of assessing quantitatively the probabilities that specific stressors, acting through defined causal pathways, will have effects on a management or conservation target (the Harwell et al. reference provides an example). This information, in turn, could be used to establish management priorities for addressing the effects of particular stressors.